

# HAZCOM TRAINING

## NUCLEAR GAUGE SAFETY TRAINING

CertainTeed Corporation  
Avery, Ohio

RADIATION SAFETY PROGRAM

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C PDR

**HAZCOM TRAINING**  
**(NUCLEAR GAUGE SAFETY TRAINING)**  
**CERTAINTED CORP. AVERY SITE**

**OBJECTIVE:**

Industrial companies routinely use devices containing radioactive material in sealed sources for process controls. These companies are required to provide annual training to employees to advise them of the presence of the radioactive materials, the manner in which it affects their job responsibilities, and site operating procedures as they apply to these individuals.

The training outlined below is appropriate for personnel who work on the described sites, but who have no direct contact with nor responsibility for these devices. This training must be conducted within 30 days for all new hires, and annually thereafter.

Hazardous communications (Hazcom) training will include the following:

1. General information regarding use and location of devices containing radioactive material on the plant site.
2. License requirements, authorization, responsible site personnel and regulatory compliance issues.
3. Methods and posting used to identify devices.
4. Site operating procedures affecting transit through or required work in areas where devices are located.
5. General health and safety issues.

Include reference documents:

- A. Emergency Procedures.
- B. Operational Procedures.
- C. ALARA Document (As Low As Reasonably Achievable)

## INTRODUCTION

Safety is a major concern at CertainTeed and in our continuing efforts to make certain you as employees are aware of our operating practices and policies, we are providing the following information for your review.

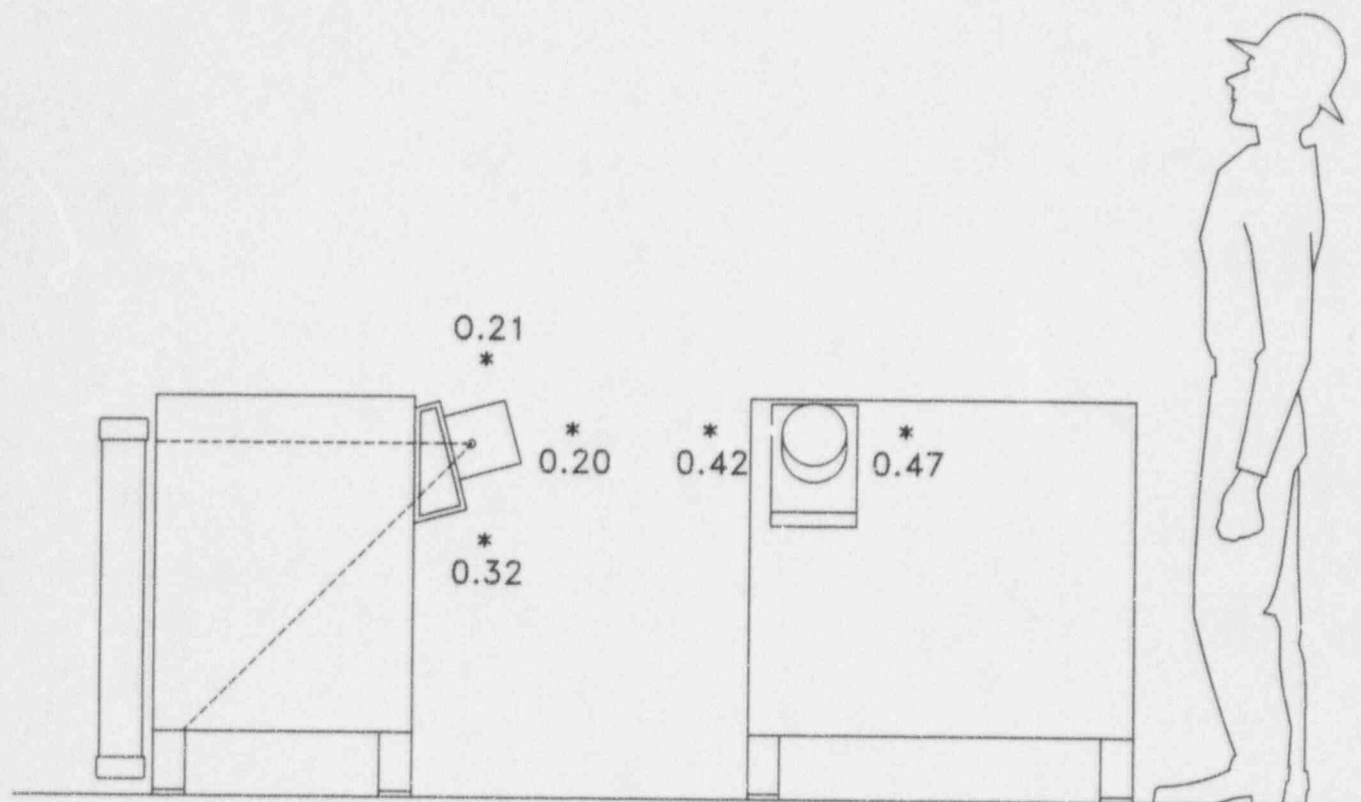
At CertainTeed we use devices containing sealed radioactive sources as a standard part of our operating process. These devices are used to make process control measurements including density of materials, levels of materials in tanks or vessels, ect.

Included with this training manual is a site plan showing the current location of each nuclear device on our facility.

## DEVICE LOCATION AND ACTIVITY

Going from North to South each gauge will be defined as to it's radioactive activity and serial number which can be verified by each devices particular tag. Also we will briefly describe it's purpose and visually show the expected amount of radiation a individual would receive at a distance of 12 inches from the source in a period of one hour. Please refer to the next fourteen pages for this information.

## SEALANT SURGE TANK



**DEVICE SERIAL #: B329**

**DEVICE PURPOSE: CONTINUOUS LEVEL MEASUREMENT**

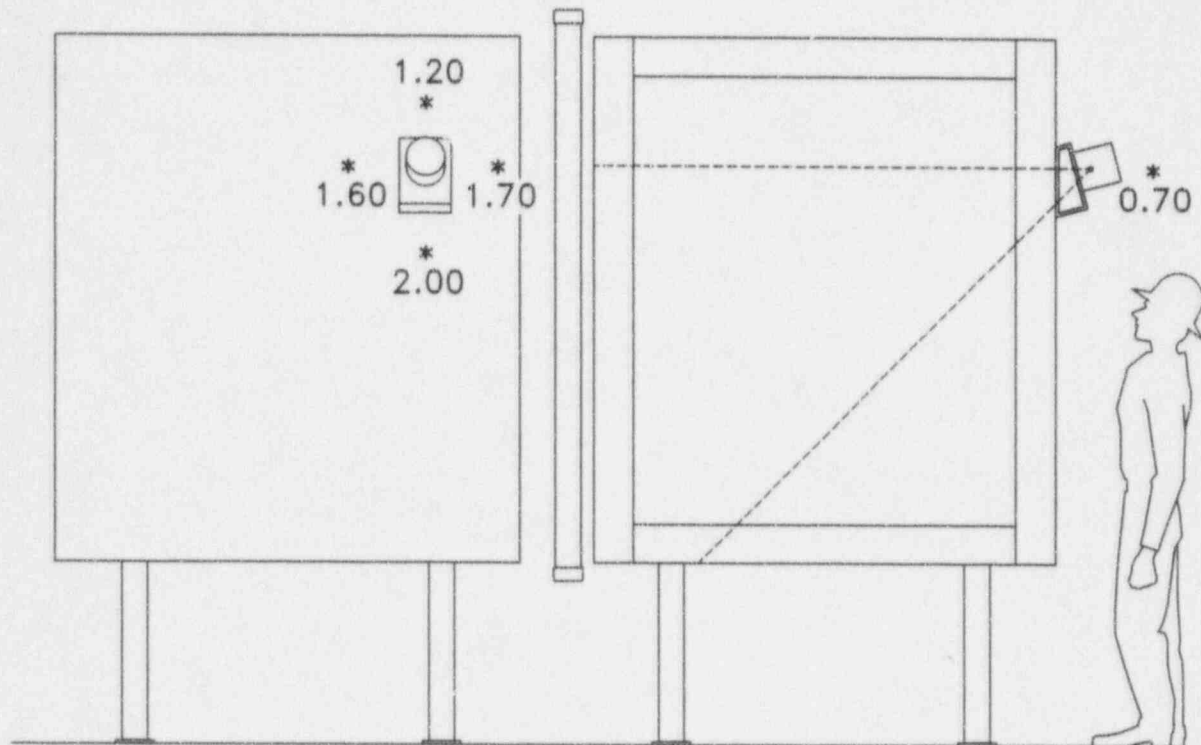
**ISOTOPE: Cs-137 @ 200mCi (milli Curies)**

**AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 0.564 mRem/hr MAX.**

**AREA OF BODY AFFECTED: Whole Body**



## OVERLAY HOLDING TANK



**DEVICE SERIAL #: B228**

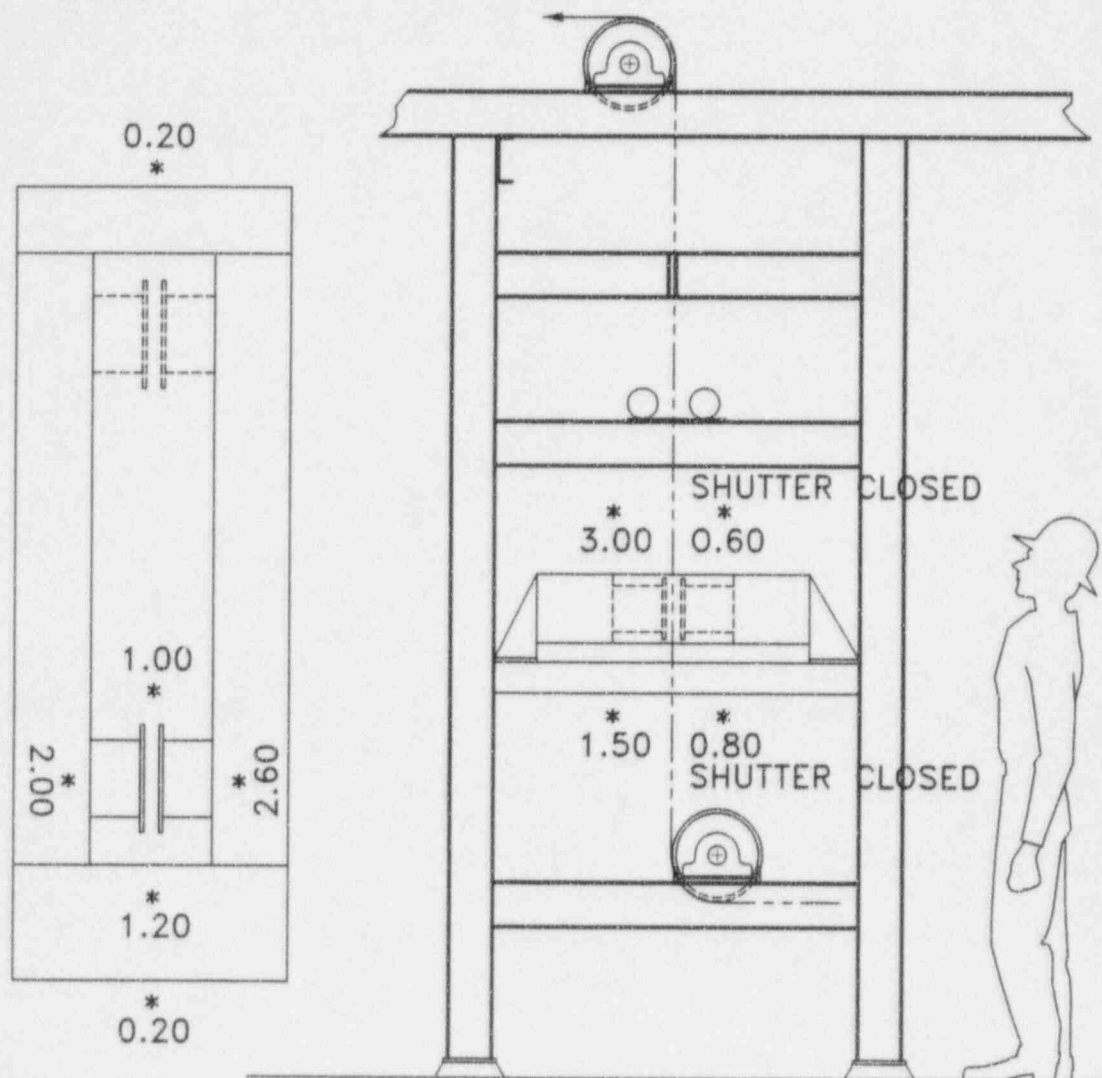
**DEVICE PURPOSE: CONTINUOUS LEVEL MEASUREMENT**

**ISOTOPE: Cs-137 @ 200mCi (milli Curies)**

**AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 2.4mRem/hr MAX.**

**AREA OF BODY AFFECTED: Whole Body**

# LINE 1 SURFACING BETA



DEVICE SERIAL #: 1402

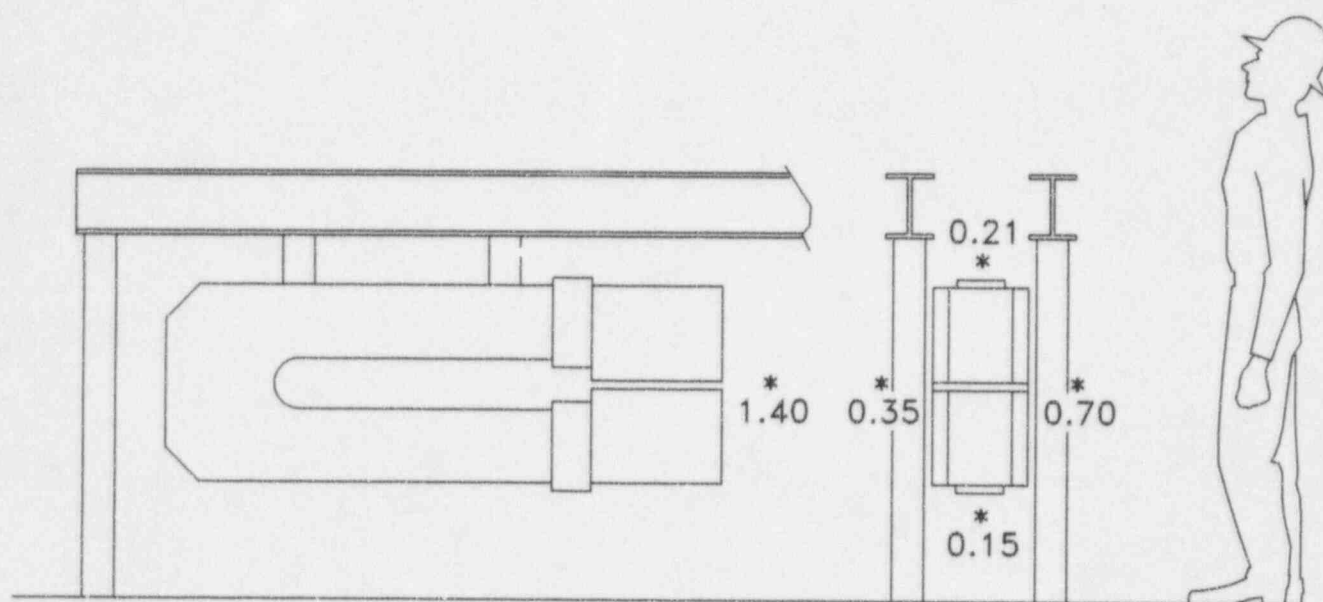
DEVICE PURPOSE: DENSITY MEASUREMENT

ISOTOPE: Sr-90 @ 100mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 3.6 mRem/hr

AREA OF BODY AFFECTED: Whole Body

**SATURATOR STRIKING END SECTION  
FRAME #1**



**DEVICE SERIAL #: S-1363-T**

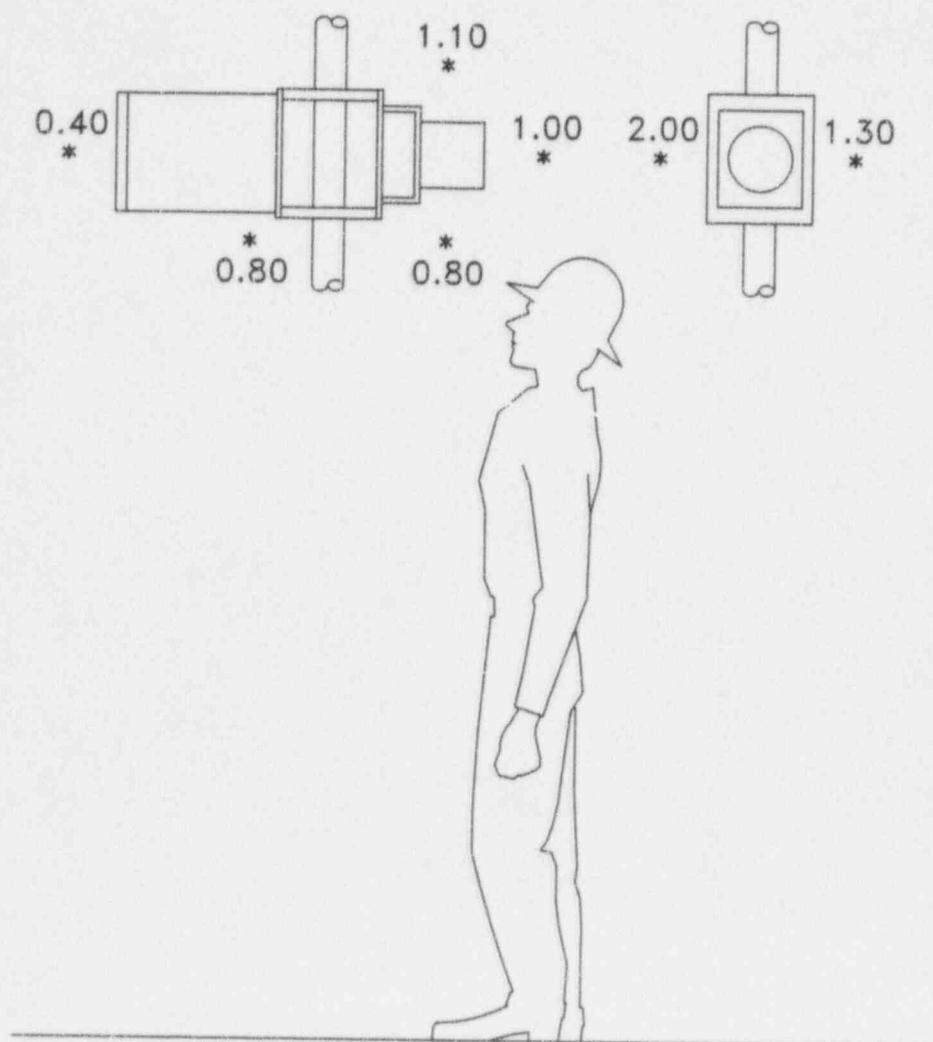
**DEVICE PURPOSE: DENSITY MEASUREMENT**

**ISOTOPE: Sr-90 @ 70mCi (milli Curies)**

**AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 0.84 mRem/hr**

**AREA OF BODY AFFECTED: Whole Body**

# FILLER PERCENT GAUGE



DEVICE SERIAL #: B661

DEVICE PURPOSE: DENSITY MEASUREMENT

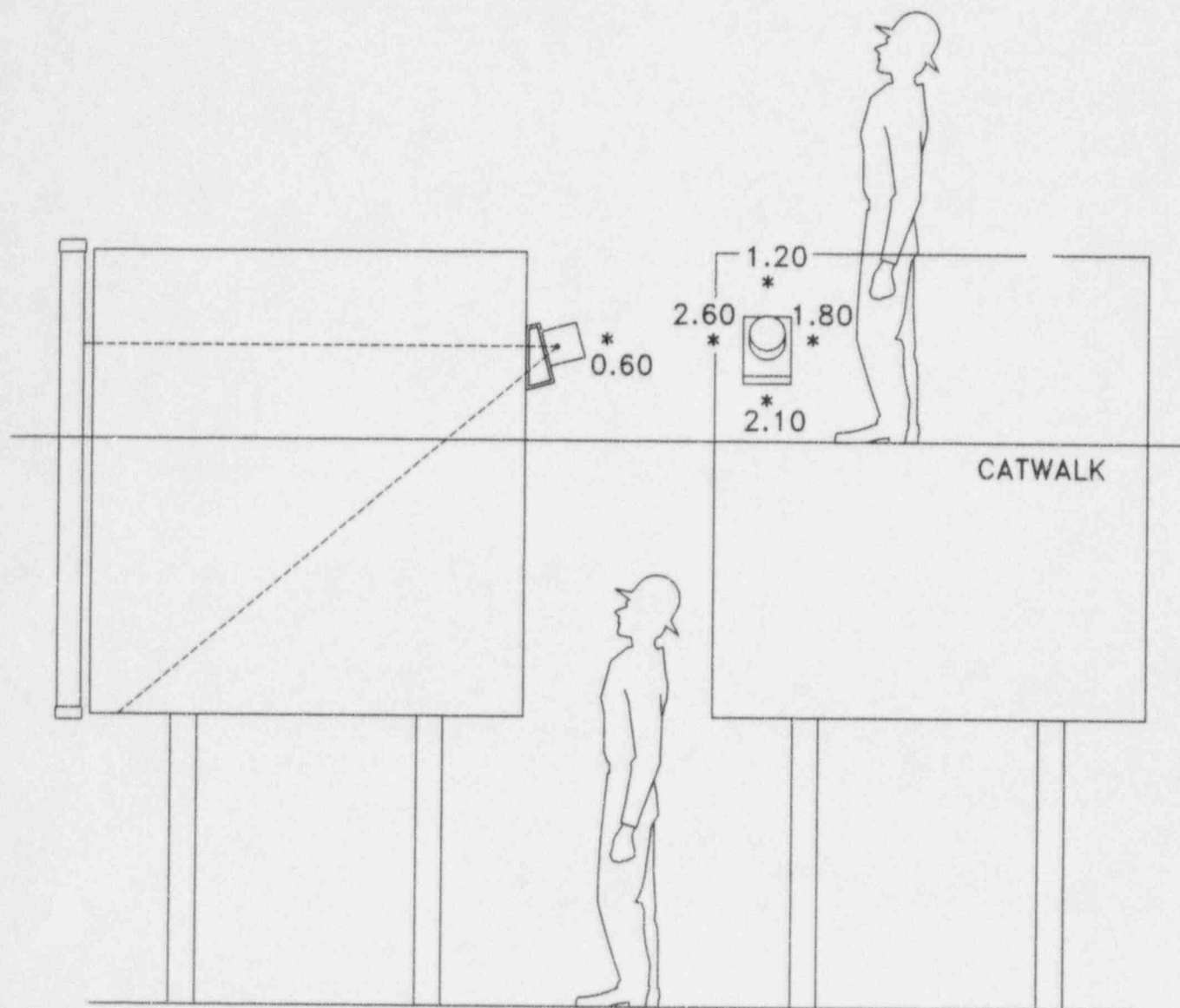
ISOTOPE: Cs-137 @ 200mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 2.4 mRem/hr

AREA OF BODY AFFECTED: Upper Body



# MAIN FILLED COATING HOLDING TANK



DEVICE SERIAL #: B181

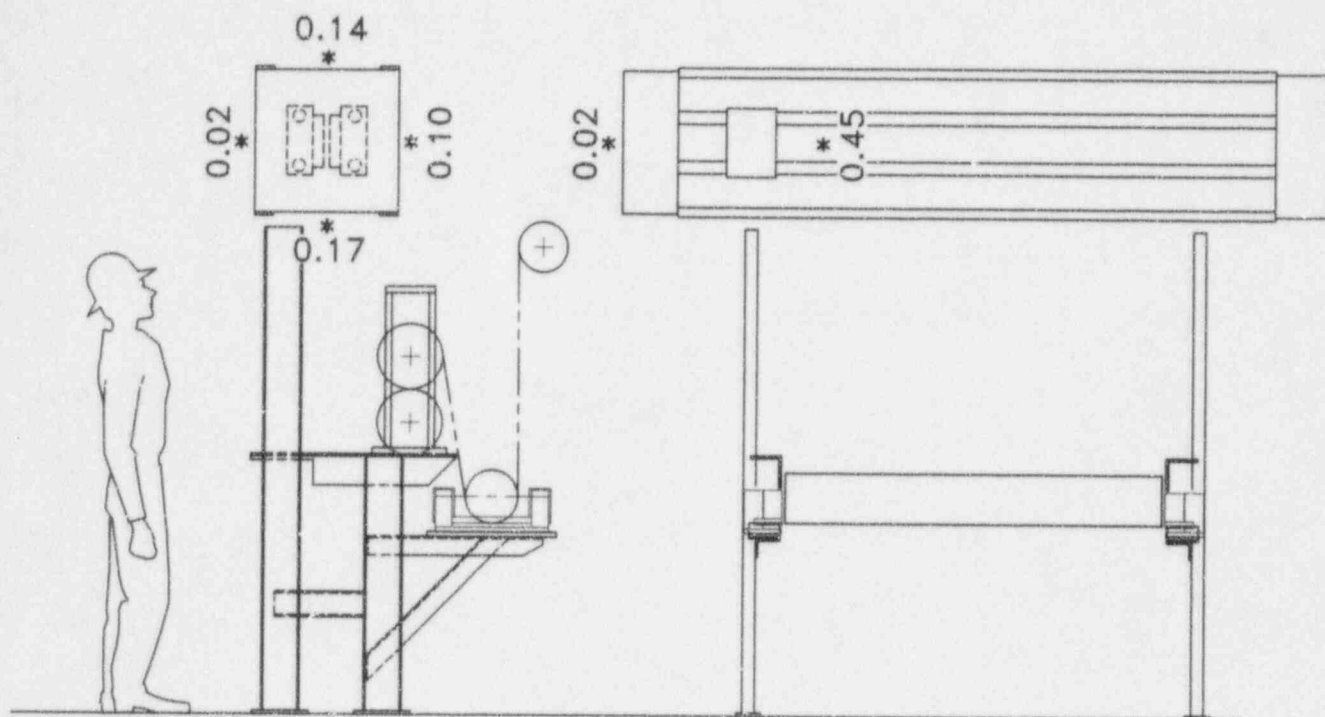
DEVICE PURPOSE: CONTINUOUS LEVEL MEASUREMENT

ISOTOPE: Cs-137 @ 200mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 3.12 mRem/hr

AREA OF BODY AFFECTED: Whole Body

## DRY END LOOPER GAUGE



DEVICE SERIAL #: K-1269-G

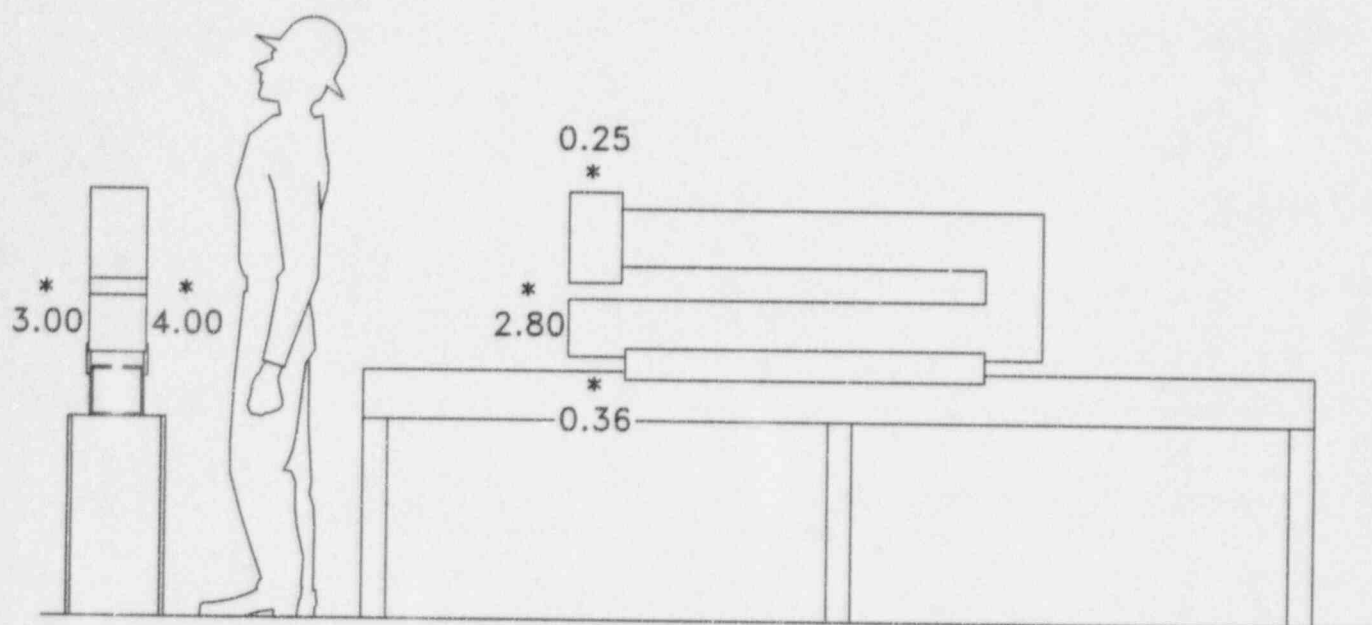
DEVICE PURPOSE: DENSITY MEASUREMENT

ISOTOPE: Kr-85 @ 250mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 0.54 mRem/hr

AREA OF BODY AFFECTED: Upper Body

# MILL DENSITY GAUGE



DEVICE SERIAL #: 7061-006

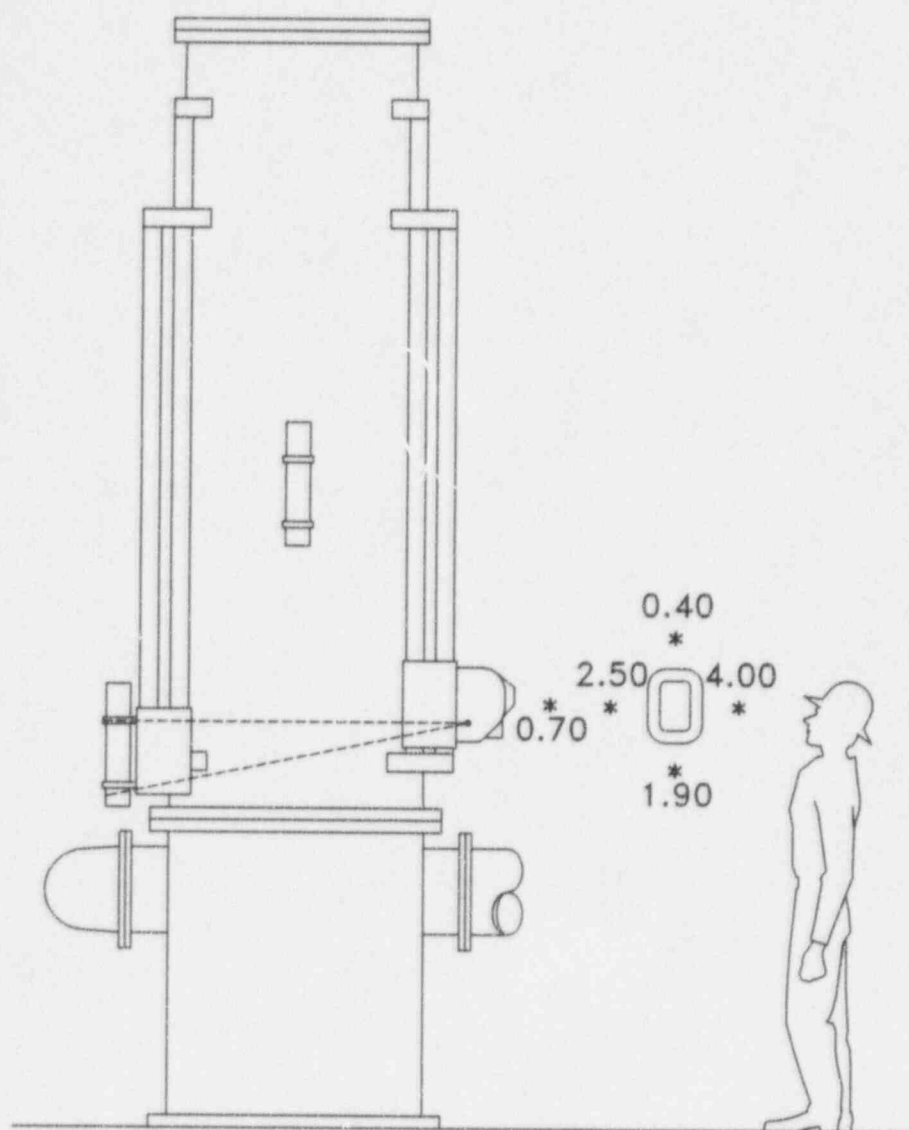
DEVICE PURPOSE: DENSITY MEASUREMENT

ISOTOPE: Sr-90 @ 100mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 4.8 mRem/hr

AREA OF BODY AFFECTED: Whole Body

## MILL LOW DEFIBRATOR



**DEVICE SERIAL #: CS2259**

**DEVICE PURPOSE: POINT LEVEL MEASUREMENT**

**ISOTOPE: Cs-137 @ 50mCi (milli Curies)**

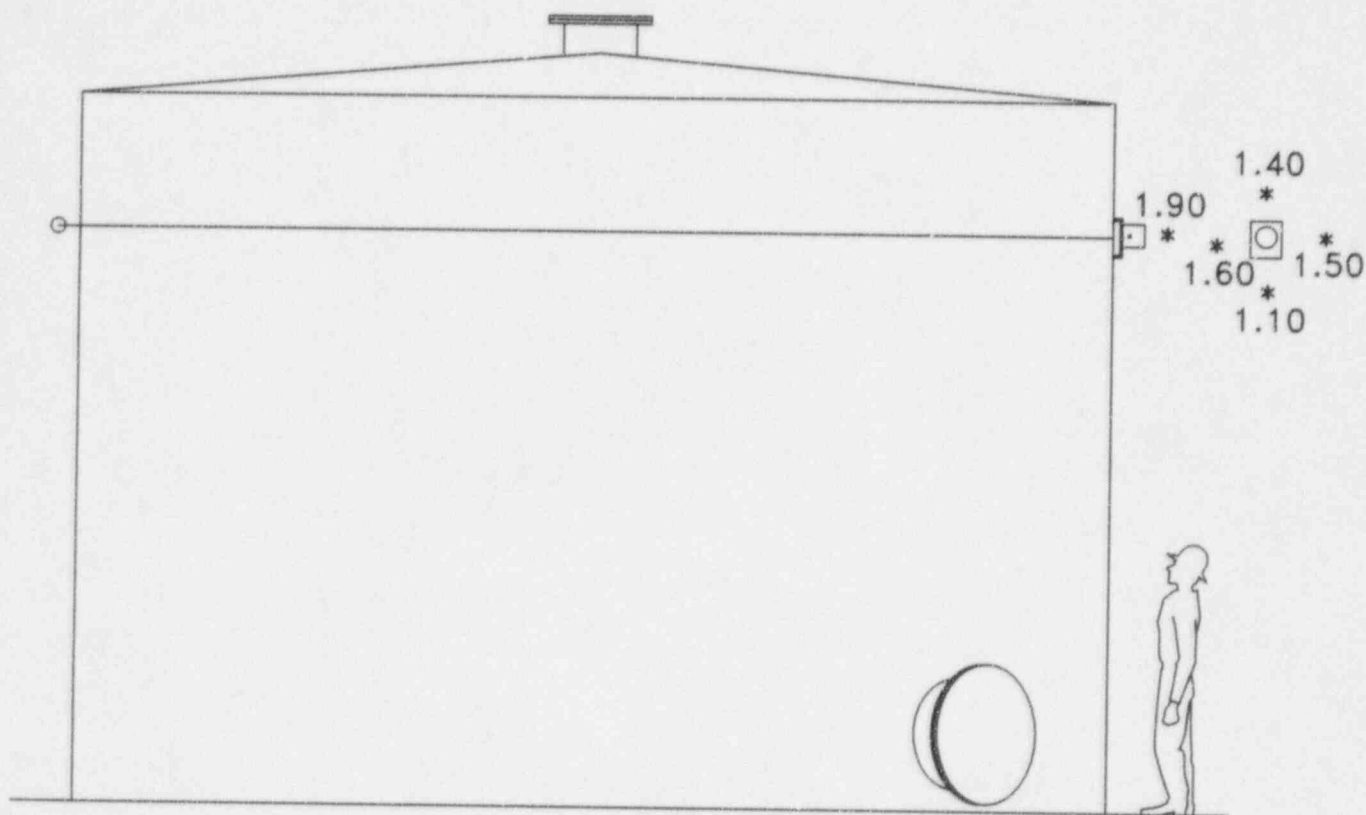
**AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 4.8 mRem/hr**

**AREA OF BODY AFFECTED: Whole Body**



**AREA OF BODY AFFECTED:** Upper Body

# ASPHALT HOLDING TANK #1



DEVICE SERIAL #: B770

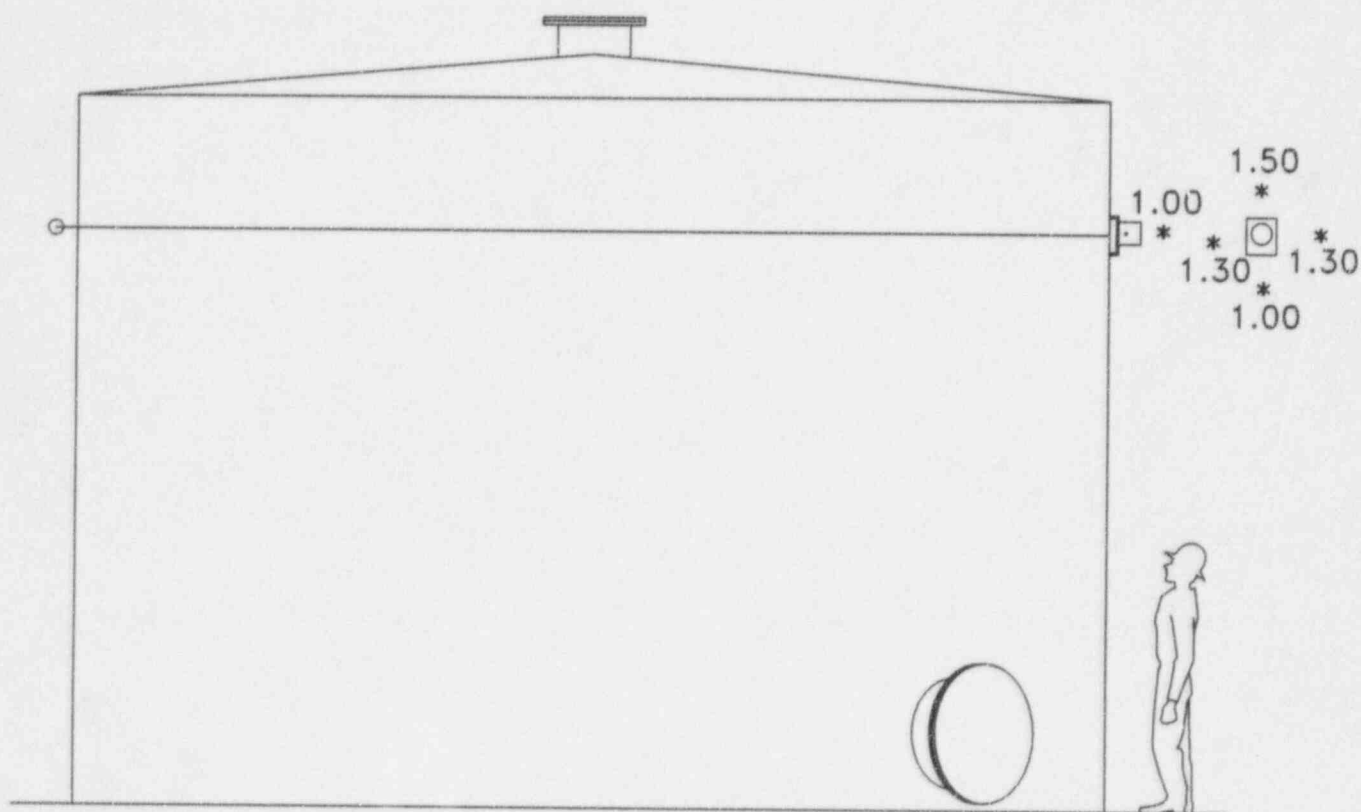
DEVICE PURPOSE: POINT LEVEL MEASUREMENT

ISOTOPE: Cs-137 @ 200mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 2.28 mRem/hr

AREA OF BODY AFFECTED: Upper Body

## ASPHALT HOLDING TANK #2



**DEVICE SERIAL #:** B1222

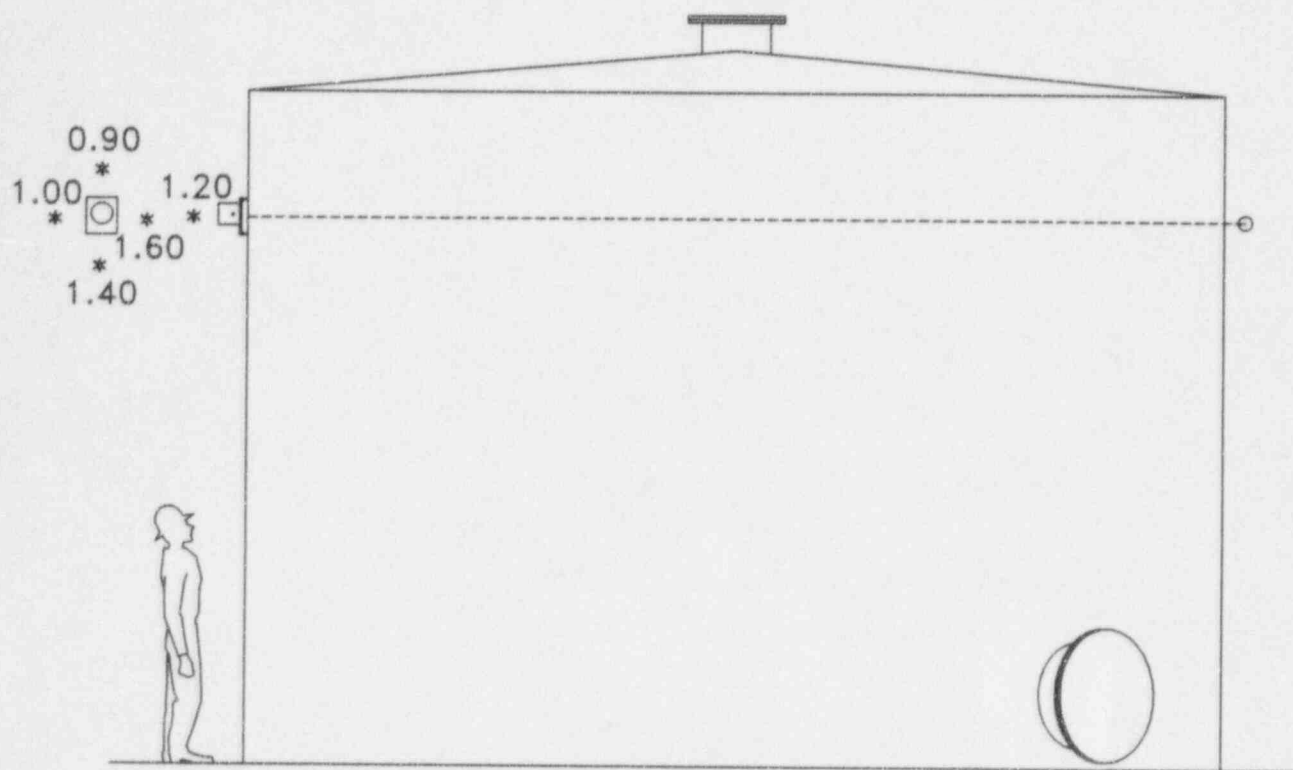
**DEVICE PURPOSE:** POINT LEVEL MEASUREMENT

**ISOTOPE:** Cs-137 @ 200mCi (milli Curies)

**AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD:** 1.2 mRem/hr

**AREA OF BODY AFFECTED:** Upper Body

### ASPHALT HOLDING TANK #3



DEVICE SERIAL #: B1223

DEVICE PURPOSE: POINT LEVEL MEASUREMENT

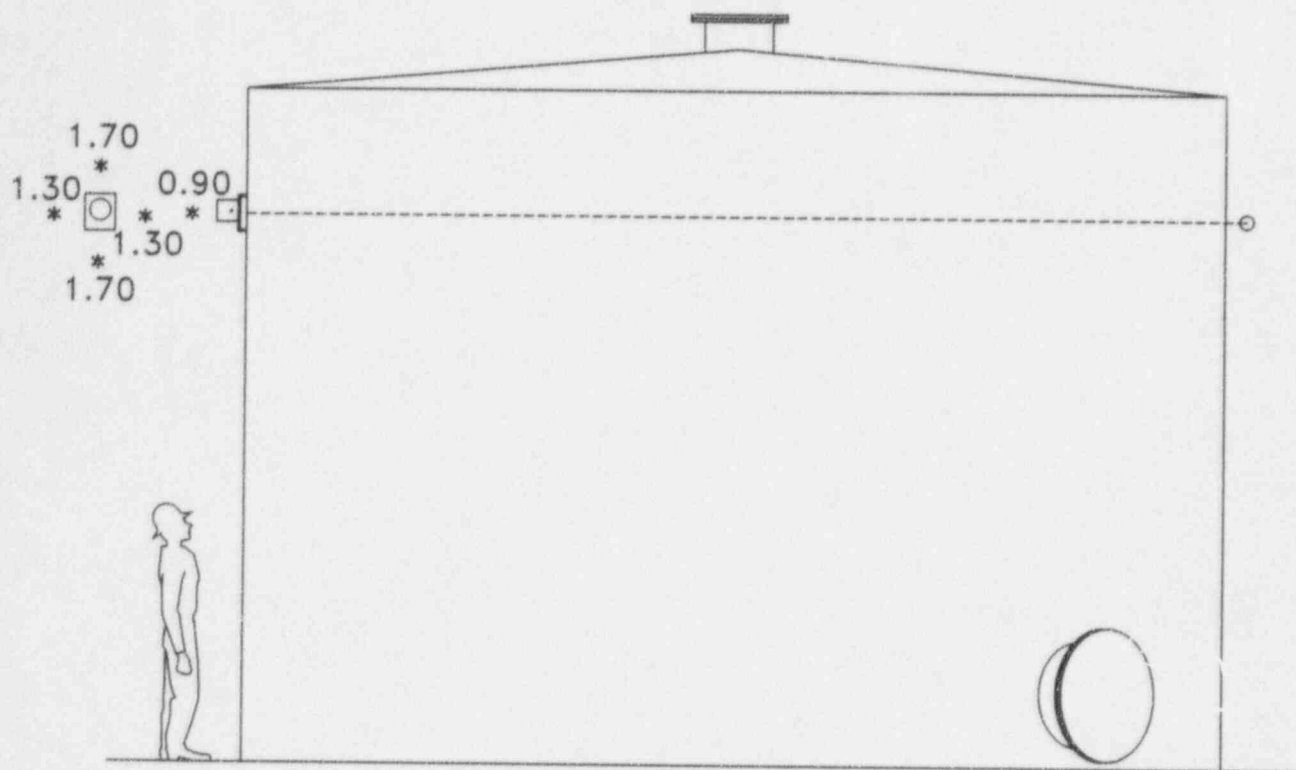
ISOTOPE: Cs-137 @ 200mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 1.9 mRem/hr

AREA OF BODY AFFECTED: Upper Body



# ASPHALT HOLDING TANK #4



DEVICE SERIAL #: B769

DEVICE PURPOSE: POINT LEVEL MEASUREMENT

ISOTOPE: Cs-137 @ 200mCi (milli Curies)

AMOUNT OF EXPOSURE IN A ONE HOUR PERIOD: 2.04 mRem/hr

AREA OF BODY AFFECTED: Upper Body

## LICENSE, RSO, EMPLOYEE CLASSIFICATION

The radioactive material is used in very small quantities totally contained in the measuring devices. We have always considered the safety of our employees to be of the highest priority, and when considering the use of these devices, we have implemented an ALARA philosophy; which simply means we are utilizing equipment and operating procedures designed to keep employee exposures due to our use of radiation and radioactive material As Low As Reasonably Achievable. A copy of our ALARA document is included in this training for your review.

CertainTeed is authorized to receive and use these devices through a licensing procedure which is administered by the Nuclear Regulatory Commission (NRC). This license is a binding contract with the Federal Government whereby we have agreed to be responsible for the safe use and control of these devices.

Rob Taggart is the current Radiation Safety Officer on this site. That means he is responsible for the radiation safety program including training of all employees, implementation of operating procedures, and maintenance of records, in addition to ensuring that the actual use of the devices is conducted in a safe manner and in compliance with license and regulatory requirements. Copies of our license, application, and site operating procedures are located in the RSO's office, and may be reviewed by any employee.

There are two categories of employees. One group is identified as Occupationally Exposed the all others are identified as Members of the Public. We have no Occupationally Exposed employees at CertainTeed, We do however, classify all employees as Members of the Public. Members of the Public will be defined as those individuals who are not Occupationally Exposed but have occasion to be in areas where radioactive material is used. Their total Effective Dose Equivalent limit is 100mrem (milli rem) per year. Expected exposures to CertainTeed maintainace and production personell on a annual basis is outlined in the following spreadsheet.

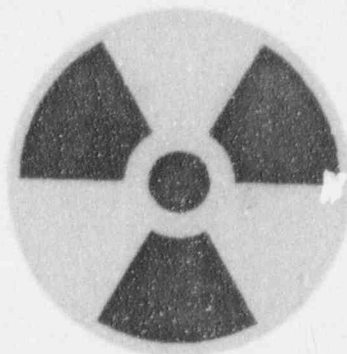
# **TOTAL EXPOSURE FROM WORKING 12 - 24 INCHES FROM SOURCE**

NUCLEAR DEVICE	TIME SPENT APPROXIMATELY 12 - 24 INCHES FROM GUAGE		ALLOWABLE ANNUAL EXPOSURE		
			EXPECTED ANNUAL EXPOSURE		
	MAINT.	PROD.	MAINTANANCE	PRODUCTION	
ASPHALT HOLDING TANK #1	6hrs./Yr.	0hrs./Yr.	13.68 mRems	0 mRems	100 mRems
ASPHALT HOLDING TANK #2	6hrs./Yr.	0hrs./Yr.	7.2 mRems	0 mRems	100 mRems
ASPHALT HOLDING TANK #3	6hrs./Yr.	0hrs./Yr.	11.4 mRems	0 mRems	100 mRems
ASPHALT HOLDING TANK #4	6hrs./Yr.	0hrs./Yr.	12.24 mRems	0 mRems	100 mRems
DEFIBRATOR LO LEVEL GAUGE	15hrs./Yr.	18hrs./Yr.	72.0 mRems	86.4 mRems	100 mRems
DEFIBRATOR HI LEVEL GAUGE	10hrs./Yr.	0hrs./Yr.	34.8 mRems	0 mRems	100 mRems
OHIMART MILL DENSITY GAUGE	10hrs./Yr.	15hrs./Yr.	48.0 mRems	72 mRems	100 mRems
MAIN FILLED COATING HOLDING					
TANK LEVEL GAUGE	10hrs./Yr.	20hrs./Yr.	31.2 mRems	62.4 mRems	100 mRems
MAIN FILLED COATING HOLDING					
TANK FILLER PERCENT GAUGE	10hrs./Yr.	6hrs./Yr.	24.0 mRems	14.4 mRems	100 mRems
ACCURAY DRY END LOOPER					
GAUGE FRAME #2	20hrs./Yr.	0hrs./Yr.	10.8 mRems	0 mRems	100 mRems
ACCURAY STRIKING END SECTION					
GAUGE FRAME #1	20hrs./Yr.	8hrs./Yr.	16.8 mRems	6.72 mRems	100 mRems
SEALANT SURGE TANK LEVEL					
GAUGE	10hrs./Yr.	4hrs./Yr.	5.64 mRems	2.26 mRems	100 mRems
OVERLAY HOLDING TANK LEVEL					
GAUGE	10hrs./Yr.	32hrs./Yr.	24.0 mRems	76.8 mRems	100 mRems
LFE DENSITY GAUGE		0hrs./Yr.		0 mRems	100 mRems
SHUTTER CLOSED	52hrs./Yr.		49.9 mRems		100 mRems

- Calculations based on the presence of one employee performing the required work infrequently over a year period.
- Dose equivalent limits calculated above are derived from sources with the shutter on position and would be much less with the shutter locked out in the off position.

## SITE IDENTIFICATION MARKINGS

The international symbol for identification of radioactive material and radiation is the trefoil. You will note that the symbol is magenta on a yellow background.

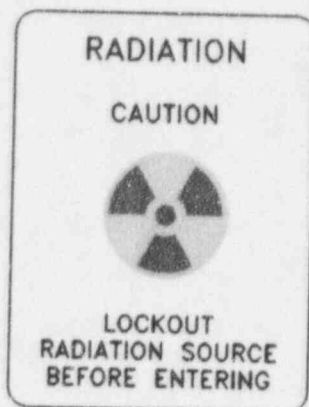


Each device containing radioactive material must bear an identification tag which includes the radiation symbol and information relative to the specific device, for example, the type of radionuclide, the activity of the source, the manufacturer, ect. The following is an example of a tag you might find on one of our fixed continuous level gauges.

	
<b>SERIES</b> CN	<b>ISOTOPE</b> Cs-137
<b>MODEL</b> 5205	<b>AMOUNT</b> 10mCi
<b>SERIAL NO.</b> 8329	<b>DATE MEAS.</b> 7-88
<b>LX-8897</b>	
<b>TEXAS NUCLEAR</b>	

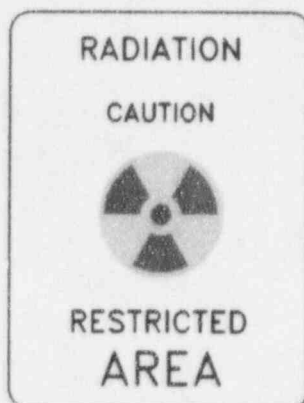


In addition to the identification tag on the device, we post cautionary signs in areas where devices are installed. This is a sample of that sign.



If you are required to pass through an area in which one or more of these devices is located, you can do so with little concern for safety as a result of the radiation. We do not recommend that you loiter in these areas, only because they are part of our process units, and there are other safety concerns.

If an area is restricted due to our use of radioactive material, it will be identified as such. If you need to be in a restricted area identified with this sign.



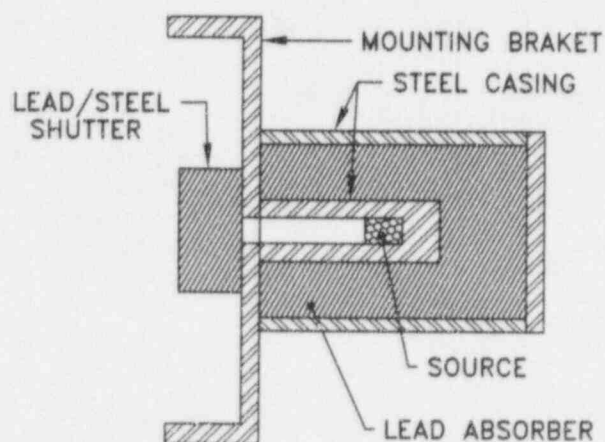
first contact the RSO as there are specific training requirements to be met prior to entering the area. As to date the Avery plant has no Restricted Areas in the facility, but cautionary signs are posted to let you know you are near a nuclear device. If you must work in the immediate vicinity of an installed device (within three feet) for longer than one hour; contact the RSO first, to discuss the project and procedures.

Entry into vessels monitored with devices containing radioactive material is controlled with a site operating procedure. The operating procedures for entry

into to all process vessels on our site is included in this training manual and can be referenced when necessary. Contact the RSO prior to entering a vessel if you have any questions or concerns about the safety of your work at hand. This training manual will include the necessary information that is required of all those who work on vessels monitored by nuclear devices and you must have a complete understanding of procedures and practices applicable to this entry.

## HOW THE SOURCE IS CONTAINED

The capsule, or nuclear source, is placed in the center of a steel source head filled with lead. The beam of radiation is controlled through the use of "on/off" mechanism usually referred to as the shutter. The following diagram shows a cut-away of this nuclear source head.



Both the capsule and device are tested to highly regulated standards prior to being approved for distribution to companies like CertainTeed. This testing includes general conditions of use in addition to industrial accidents like fires and explosions. If, when walking through an area in which devices are located you should see a device which has become dislocated from its installed position, there is no need to panic. Simply notify the RSO so proper actions may be taken to secure the device.

## RADIATION EXPOSURE

There are limits established which detail the levels to which occupationally exposed employees and members of the public may be exposed. As a part of our radiation safety program and our commitment to ALARA, we have made assessments of radiation levels around installed devices that you have already reviewed in past reading. Based upon these levels and our knowledge of job responsibilities, we have determined annual estimated exposure levels for our employees.

As a member of the public, your annual exposure limit resulting from work on this site is 100 millirem. This is a very low level and you probably will never approach it in the course of your normal job duties. You will most likely receive a higher exposure from natural sources of radiation which include cosmic rays, radiation in rocks and soils, concrete building products, ect. In addition one routinely receives higher exposures from medical and/or dental procedures. For example, a well done chest x-ray will normally result in an exposure of 40-50 millirem.

If you have questions or concerns about our use of radioactive material on this site, please contact the Radiation Safety Officer or your supervisor. We will be glad to answer any questions which occur as a result of this presentation.

## **OPERATING PROCEDURES**

### **(Avery Radiation Safety Program)**

The operating procedures for the Avery CertainTeed Radiation Safety Program have been established in order to define all aspects dealing with the interaction of our on site nuclear devices.

The following will be discussed:

1. Methods by which sources of radiation will be handled and used so that exposures are maintained As Low As Reasonably Achievable (ALARA)
2. Procedures and situations when site personnel will lock out and secure devices containing radioactive material.
3. Procedures and occasions for radiation surveys and leak tests.
4. Procedures for proper maintenance of records.
5. Procedures for proper packaging, marking, and labeling of devices being transported.
6. Personnel monitoring for site personnel, when applicable.



## **HANDLING**

There are several issues that must be followed when receiving a device used for radiological control of industrial equipment. Upon receipt of the device all material that comes with the gauge, packaging slips, leak tests, manuals, ect. should be given to the plant RSO for record keeping purposes. The RSO should have the actual date the unit arrived on site in original document form. A close inspection of the package should be made as soon as possible. If there is any suspicion of shipping damage, survey the shipping box or crate to ensure the radiation levels are the same as those indicated by the shipping labels. Ask the RSO to do this if there is a need. If there are significant differences (e.g., +50%), remove unnecessary personnel from the immediate area. If lifting equipment is needed to move the device for examination, make certain it is available before proceeding. If visible damage is evident, the RSO should be notified immediately.

If there is no shipping damage, call the RSO, he will determine if the unit is to be placed in temporary storage or if the packaging can be removed and the unit moved to the required job site. After removal of the packaging box or wrap, visual inspection of the shutter assembly, locking mechanism, and correctness of labeling should be done to assure safety.

Upon installing the gauge, we must have, on site, a representative from the supplier that holds a specific license to install their gauges. Our license does not allow us to install without supervision from the supplier. Line 15 of our Specific License Agreement states:

Installation, initial radiation survey, relocation, removal from service, maintenance, and repair of devices containing sealed sources and installation, replacement, and disposal of sealed sources shall be performed only by persons specifically licensed by the Commission or an Agreement state to perform such services.

With the appropriate supervision on site place the gauge following manufacture's instructions and/or drawings. The manufacture's instructions and/or drawings should be maintained under file in the RSO office. After the unit has been placed the supplier representative will perform the necessary commissioning steps which include, leak test and area surveys. All individuals asked to work around these devices must have training in awareness and how their job is affected by the radiation control device. Training should be completed and documented at this time by the RSO or other authorized individual.

Removal or relocation of the gauging device is opposite to the installation. Proper supervision should be on site and proper lock out procedures should be followed. Leak test must be performed on the unit prior to relocation or removal, and continued during storage at scheduled intervals. Leak testing is performed only by the RSO. The period



between testing is defined as: all fixed gauges will be tested every three (3) years, and all gauges which perform scanning functions will be tested every six (6) months.

## LOCK OUT PROCEDURES

All gauges with visible shutter mechanism will be locked out at all times when the shutter is in the "off" position.

Cleaning a vessels which has a radiation controller for level:

Once the vessel has been shut down and before entering or pulling any manways move the shutter mechanism to the "off" position and lock the unit until it becomes necessary to reengage the radiation source for it's intended purpose. If the vessel will not be used for the next startup, do not remove the lock from the source. Wait until it is necessary. All of our vessels are equipped with alarms that sound if you try to open the vessel without locking out the radiation source first if you do not receive this alarm and the source is still "on" notify maintenance personnel immediately. Never attempt to clean out or reach into a vessel with the source shutter in the "on" position.

Cleaning around and on scanning radiation devices:

All of the scanning radiation devices are listed below:

1. Dry end looper gauge frame #2
2. Saturator striking in gauge frame #1
3. LFE surfacing beta line 1
4. Ohmart mill density gauge

These devices have shutters which cannot be seen from the outside of the unit. They do however have visual lighting telling you in what position the shutter is in at the time. Each gauge has a **GREEN** and a **RED** light. When the green light is visible this means that it is safe to perform the required work around these gauges. When the light is red no work should be performed on or around these gauges for extended periods of time. The asphalt tanks in the stillyard are also equipped with these same lighting arrangements and should be noted when any work must be performed inside of the vessels. Any time you see that one of the two lights are not on, you should notify the RSO and maintenance immediately.

This lockout procedure is listed as a part of our material license and could cause it to be revoked or amended unless it is followed very closely. Line 18 is stated as follows:

The licensee shall assure that the shutter mechanism is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify as appropriate its "lock out" procedures whenever a new gauge is obtained to incorporate the device manufacturer's recommendations.

## SITE SURVEYS AND LEAK TESTS

The plant RSO will perform all leak test and site surveys at the Avery location. Anyone is welcome to review site surveys concerning your area of work at anytime.

Gauges which must be leak tested every six (6) months:

1. Ohmart mill density gauge.
2. Dry end looper gauge frame #2
3. Saturator striking in gauge frame #1
4. Line 1 surfacing beta
5. Line 2 surfacing beta

Gauges which must be leak tested every three (3) years

1. Line 1 filler percent gauge
2. Line 2 filler percent gauge
3. Asphalt holding tank #1
4. Asphalt holding tank #2
5. Asphalt holding tank #3
6. Asphalt holding tank #4
7. Sealant surge tank gauge
8. Main filled coating tank gauge
9. Overlay holding tank gauge
10. Mill hi defibrator gauge
11. Mill lo defibrator gauge

At the present time Avery performs the physical swabbing for the leak tests and then the swabs are sent to Texas Nuclear for evaluation and returned with an official copy of it's finding which are filed for each gauge in the existing RSO files and are open for review by anyone interested.

Site surveys consist of exposure rates that will be incurred during regular working conditions in areas which are occupied by radiation control devices.

## **RECORD KEEPING**

Regulations require that certain records be maintained on file and made available during any inspection. Some of these records may be discarded if approval is given during an inspection. Any records of required personnel monitoring must be kept for the working lifetime of the individual. All records pertaining to the Radiation Safety Program and each gauge on site are required as follows:

- A copy of the site radioactive materials license.
- A copy of the license application and all documents and letters pertaining to the license or any amendments.
- Receipt records for each device.
- Original leak test certificates.
- Installation survey and leak test records.
- All subsequent leak test records.
- A copy of applicable sections of the regulations.
- Copies of inspection reports, any citations and response to those citations.
- Records of any transfer or disposal of devices.
- A survey and leak test for any device that has been relocated.
- Copies of the semiannual inventory covering a two year period.
- Personnel exposure records if monitoring is required. If pocket chambers are used, a log should be maintained for each individual. This log should include the name and social security number of the individual being monitored plus the serial number of the dosimeter used and the exposure reading for the time involved.
- Facility decommissioning records.
- Detailed training records.
- Records of implementation and audits of the Radiation Protection Program.

The Nuclear Regulatory Commission (NRC) also requires posting of the "Notice to Employees" sign along with information on the whereabouts of the operating license, operating procedures, and emergency procedures for review by anyone.



## **PACKAGING AND TRANSPORTING**

To properly classify and label a shipment of radioactive materials, you must identify the A1 - A2 limits of the isotope. Each radioactive isotope is assigned a category and the total amount of activity that can be shipped under either Type A or Type B packaging is determined according to this classification. Type A packaging must simply be adequate to withstand the abuses normal to transportation, and meet the packaging design requirements summarized below. Almost all industrial gauging devices can ship as Type A since they meet or exceed these criteria.

1. The smallest overall external dimension of the package is not less than 10 cm (4 inches).
2. The outside of the packaging incorporates a feature, such as a seal, that is not readily breakable, and that, while intact, is evidence that the package has not been opened. In the case of packages shipped in exclusive use closed transport vehicles, the cargo compartment may be sealed instead of the individual package.
3. As far as practicable, the external surfaces are free from protrusions and are designed and finished so that they can be easily decontaminated.
4. Containment and shielding would be maintained during transportation and storage in a temperature range of -40C to 70C with account being taken of the possibility of brittle fracture.
5. It is able to withstand the effects of any acceleration, vibration, or vibration resonance that may arise during normal transportation, without any deterioration of the effectiveness of closing devices or of the integrity of the package as a whole.
6. The materials of the packaging and any components are physically and chemically compatible with each other and with the contents, taking into account the behavior of each under irradiation.
7. Any radiation shield that enclosed a component of the packaging specified as part of the containment system will prevent the unintentional escape of that component from the shield.
8. The packaging will prevent loss or dispersal of the radioactive contents, and any significant increase in the maximum radiation level recorded or calculated at the external surface.

The radiation levels at the surface and at one meter determine the label necessary for shipment. There are several different labels used for different levels of activity. Please see the RSO for information regarding the usage of these labels.

CertainTeed is not in the practice of transporting nuclear devices. If the occasion comes up, very stringent regulations must be followed. Please see the plant RSO for information on transporting these devices before the decision to do so arises.



## **PERSONNEL MONITORING**

Personnel monitoring must be provided for the following conditions:

- Adults classified as "Occupationally Exposed" likely to receive an external dose in excess of 10% of the annual limit; i.e., 500mrem/yr.
- Pregnant and declared pregnant females likely to receive an external dose in excess of 50 mrem/yr.
- Individuals entering a high or very high radiation area.

When personnel monitoring is required, the licensee is responsible for obtaining all prior occupational dose records for the individual, using NRC Form-5 or an equivalent Agreement State Form. Lifetime occupational exposure history must be maintained on an annual basis on NRC Form -4 or equivalent. For those individuals receiving internal and external doses, both are now to be summed and recorded as the Total Effective Dose Equivalent. It is also mandatory that annual reports be provided to all workers for whom monitoring is required. Routine monitoring reports do not have to be filed with the regulatory agency. However, most agencies request the records if a license is terminated.

If you fall into any of the above categories, contact the plant RSO and arrangements will be made for monitoring.

## **EMERGENCY PROCEDURES**

### **(Avery Radiation Safety Program)**

The most important issue during a radiation emergency is that you know where the radiation device is located and that you know to stay clear and keep others from inadvertently walking through a hazardous area. Each device that we have on our site is located in a potentially explosive or possible fire area, or area which is accessible to traffic. Damage can be inflicted to the radiation device by other catastrophes beyond control. Keep a level head during these situations and rely on the outlined STANDARD EMERGENCY PROCEDURES posted for information on what to do in a emergency situation.

#### **Emergency Guidelines Involving Fire or Explosion and Possible Contamination**

1. Notify all other persons in the room and building at once.
2. Notify the fire department, other local plant safety personnel and the Radiation Safety Officer (RSO).
3. Attempt to put out fires by approved means if potential for radiation exposure is not immediately hazardous.
4. Govern fire fighting of other emergency activities by the restrictions of the RSO.
5. As soon as possible, monitor the area and determine protective steps necessary for safe re-entry.
6. Permit no person to return to the area without the approval of the RSO; maintain a list of entries.
7. Call for any additional advice or assistance necessary.
8. If possible contamination is involved, the area of the accident should be restricted. The public should be kept as far from the scene as is practical. Local authorities should make only necessary investigations in the accident area. No attempt should be made to open or examine contained material. No attempt should be made to clean up any debris or material involved in the accident prior to the arrival of properly trained and equipped individuals.
9. Any person who have had possible contact with the radioactive material should be segregated and confined until they can be examined further. The names and addresses of those involved should be obtained.
10. The injured should be removed from the area of the accident with as little contact as possible and held as a transfer point. All lifesaving measures should be performed promptly, but elective first aid and surgical procedures should be delayed until advice or help can be obtained from a physician familiar with radiation medicine. Except in extreme emergency, patients should not be moved to a local hospital or doctor's office before a radiological survey has been made to assess possible contamination problems.
11. If the incident involves fire, attempts to extinguish it should be made from as great a distance as possible, avoiding smoke, fumes, or dust as much as possible. The fire should be treated as one involving toxic chemicals. Suspected material should not be

handled until it has been monitored and released by monitoring personnel. Clothing and tools used at the fire should be segregated until they can be checked by emergency monitoring teams.

12. Prepare a complete history of the emergency and subsequent activity related thereto.

### **INCIDENT REPORT**

In the event of a radiation accident, certain essential facts must be obtained as promptly and accurately as possible. These facts are needed to estimate the magnitude of the incident, limit the extent of damage, and begin remedial measures. The following information needs to be acquired as soon as possible:

- What happened?
- When did it occur? (time and date)
- Where did it happen? (building, floor, area)
- Who was involved? (names)
- Who was exposed or injured? (name and extent of injury or exposure)
- Where are the injured or exposed now?
- How much damage to facilities?
  - a. Was damage confined to company property?
  - b. What damage was done to property of others?
- Is radioactive contamination a problem?
  - a. If so, how extensive is contamination? (on-site, off-site)
  - b. What is being done to control the contamination?
- Is outside help required? (fire, police, regulatory agency)
- Is medical assistance required?
- Should personnel be evacuated?
  - a. From the incident area or building?
  - b. From the site?
  - c. From the locations off-site

## **STANDARD EMERGENCY PROCEDURES**

### **FIRE, EXPLOSION OR VEHICLE ACCIDENT**

1. **SECURE THE AREA AROUND THE ACCIDENT. KEEP UNAUTHORIZED PERSONS AWAY. ALERT PEOPLE IN VICINITY OF THE PRESENCE OF RADIOACTIVE MATERIAL AND POSSIBLE HAZARDS.**

2. **DO NOT LEAVE THE SITE, Send a helper or onlooker to notify the following:**

**Radiation Safety Officer: Robert Taggart**

**Work Phone: ext. 238**

**Home Phone: (419) 627-8532**

**Local Police: 9 (419) 499-2011**

**Local Fire Department: 9 (419) 499-2111**

3. **The Radiation Safety Officer in turn must immediately notify:**

**Regulatory Agency: NRC (708) 829-9500**

4. **If assistance is needed, contact Radiation Technology, Inc. (512) 346-7608.**

5. **The RSO or alternate should inform emergency workers of the potential for existence of a radiation hazard; should help them keep the area secure; and should explain to emergency personnel the location of the radioactive device and the extent of the possible hazard. In no case should response personnel leave the site until qualified experts arrive, unless of course the worker is seriously injured or incapacitated, and must be removed from the site by emergency personnel.**

### **ALERT NAMES AND TELEPHONE NUMBERS DESIGNATED BY THE RADIATION SAFETY OFFICER.**

**Radiation Technology: Doris C. Bryan Phone: (512) 346-7608**

**TN Technologies: Chuck Jackson Phone: (614) 882-1426**

**APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_**



## ALARA POLICY STATEMENT

Consistent with our operating philosophy and supporting procedures, it is the policy of CertainTeed Corporation, Avery, Ohio, plant to conduct its radiological operations in a manner which ensures the health and safety of its employees and the general public. In achieving this objective, CertainTeed Corporation, Avery plant shall ensure that radiation exposures to its workers and the public are maintained As Low As Reasonably Achievable and in compliance with regulatory limits consistent with our operations. The company is fully committed to implementing a radiological program of the highest quality which consistently reflects this policy.

In meeting this policy, The company shall:

1. Establish and maintain a system of regulatory policy guidance reflective of national and international radiation protection standards and recommendations. The Radiation Safety Officer has responsibility for promulgating and maintaining policies, standards, and guidance related to radiological protection.
2. Ensure personnel responsible for performing radiological work activities are appropriately trained. Standards shall be established to ensure the technical competency of the company work force, as appropriate through implementation of standardized and mandated radiological training and development programs.
3. Ensure the technical competence of personnel responsible for implementing and overseeing the radiological control program. An appropriate level of technical competence gained through education experience, and job related technical and professional training is a critical component for achieving the goals of the company's radiological control policy. Qualifications requirements commensurate with this objective shall, at a minimum, be consistent with applicable industry standards and promote professional development and excellence in radiological performance.
4. Establish and maintain, from the lowest to the highest levels, line management involvement and accountability for radiological performance. The responsibility for compliance with company radiological protection requirements, and for minimizing personnel radiation exposure, start at the worker level and broadens upward as it progresses upward through the line organization.
5. Ensure radiological measurements, analysis, worker monitoring, results and estimates of public exposures are accurate and appropriately made.



The capability to accurately measure and analyze radioactive materials and workplace conditions, and determine personnel radiation exposure is fundamental to the safe conduct of radiological operations. Policy, guidance, and quality control programs shall be directed toward ensuring such measurements are appropriate, accurate, and based upon sound technical practices.

6. Conduct radiological operations in a manner that controls the spread of radioactive materials and reduces exposure to the work force and the general public and that utilizes a process which seeks exposure levels as low as reasonably achievable.
7. Conduct oversight to ensure company requirements are being complied with and appropriate radiological work practices are being implemented.